Amendments to the Claims

Claim 1 (currently amended):

A process for pyrolysis of feedstock, comprising the following steps:

introducing feedstock into, and moving said feedstock through, a reactor tube; and heating the feedstock within said reactor tube to a sufficient temperature such that pyrolysis occurs,

wherein the feedstock is introduced into the reactor tube from an inner hopper,

wherein gases of pyrolysis travel through the feedstock in the inner hopper such that said feed stock in the inner hopper acts as a [filler] filter,

wherein heat for heating the feedstock is generated by a heat source selected from the group consisting of: combustion chamber, gases, electric oven, coal, heavy oil, tire crumb, electric tube furnace, microwave, solar, and nuclear.

Claim 2 (currently amended):

The process according to claim 1, wherein said feedstock comprises a substance selected from the group consisting of biomass wood chips, newspaper, mixed waste paper, peat, energy crops, agricultural residues, coal, tire chips, plastics, and RDF [and other organic matter].

Claim 3 (original):

The process according to claim 1, wherein the heat generated by the heat source is conducted to the feedstock within the reactor tube through a reactor tube wall.

Claim 4 (original):

The process according to claim 1, wherein the feedstock is moved through the reactor tube by a rotating auger.

Claim 5 (original):

The process, according to claim 1, wherein pyrolysis occurs within a temperature range from about 800 C (1650 F) to about 1200 C (2190 F) such that substantially anaerobic gasification occurs.

Claim 6 (original):

The process according to claim 1, wherein pyrolysis occurs within a temperature range from about 400 C (752 F) to about 800 C (1472 F) such that liquefaction occurs.

Claim 7 (original):

The process according to claim 1, further comprising the steps of: introducing feedstock into, and moving said feedstock through, at least one additional reactor tube;

and heating the feedstock within said at least one additional reactor tube to a sufficient temperature such that pyrolysis occurs;

wherein the feedstock is introduced into at least one additional reactor tube from the inner hopper.

Claim 8 (original):

The process according to claim 1, wherein said reactor tube comprises an exit orifice, feedstock exiting the reactor tube via the exit orifice enters a pressure vessel such that the pressure from the pressure vessel controls the flow of gases of pyrolysis from exiting into the pressure vessel.

Claim 9 (original):

The process according to claim 1, wherein a gas is injected into the reactor tube.

Claim 10 (original):

The process according to claim 9, wherein said gas is selected from the group consisting of CO_2, steam, natural gas, oxygen, and air.

Claim 11 (currently amended):

The process according to claim 4, wherein the auger comprises a hollow shaft having at least one opening, wherein at least a portion of the gases of pyrolysis [can] exit through said hollow shaft.

Claim 12 (original):

The process according to claim 10, further comprising the step of controlling the flow of the gas into the reactor tube in order to adjust the conversion of char and tar exiting the reactor tube into useful gases and/or liquids.

Claim 13 (original):

The process according to claim 1, further comprising the step of capturing the feedstock residue exiting the reactor tube, wherein said process is useful for pyrolysis of feedstock comprising a contaminant.

Claim 14 (original):

The process according to claim 1, further comprising the step of capturing the feedstock residue exiting the reactor tube, wherein said process is useful for pyrolysis of feedstock used for phytomining.

Claim 15 (amended):

The process according to claim 13, wherein said contaminant is selected from the group consisting of heavy metals, lead, mercury, highly refractory metals, volatile metals, copper, chromium, arsenic, and copper chromium arsenate [and other toxics].

Claim 16 (original):

A device for pyrolysis of feedstock, comprising:

a reactor tube within which pyrolysis of feedstock occurs;

a means for moving feedstock through the reactor tube;

a means for heating the feedstock within said reactor tube to a sufficient temperature such that pyrolysis occurs; and

an inner hopper, wherein the feedstock enters the reactor tube from the inner hopper, wherein gases of pyrolysis travel through the feedstock in the inner hopper such that said feedstock in the inner hopper acts as a filter.

Claim 17 (original):

The device according to claim 16, wherein the means for moving said feedstock through said reactor is a rotating auger.

Claim 18 (original):

The device according to claim 16, wherein said reactor tube comprises an exit orifice, wherein the feedstock residue exiting the exit orifice enters a pressure vessel, wherein the pressure from the pressure vessel controls the flow of gases exiting the exit orifice.

Claim 19 (currently amended):

The device according to claim 16, wherein the auger comprises a hollow shaft having at least one opening, wherein at least a portion of the gases of pyrolysis [can] exit through said hollow shaft.

Claim 20 (original):

The device according to claim 18, further comprising a means for injecting a gas into the exit orifice of the reactor tube.

Claim 21 (currently amended):

The device according to claim 20, wherein [said] the gas is selected from the group consisting of carbon dioxide, steam, natural gas, oxygen, and air.

Claim 22 (original):

The device according to claim 16, further comprising:

a means for capturing the feedstock residue exiting the reactor tube, wherein said device is useful for pyrolysis of feedstock containing contaminants.

Claim 23 (original):

The device according to claim 16, further comprising:

a means for capturing the feedstock residue exiting the reactor tube, wherein said device is useful for phytomining.

Claim 24 (original):

The device according to claim 19, comprising a means whereby a portion of the pyrolysis gases or external gases are injected into a lower end of the hollow shaft to hasten the transport of condensable gases to an external condenser liquid separator.

Claims 25-36 (canceled)